

INTEGRATED OPTICAL SCANNING IMAGE ACQUISITION AND DISPLAY

Abstract of the Disclosure

An apparatus and method for providing image acquisition and/or image
5 display in a limited region of interest (ROI). The apparatus comprises a micro
electro-mechanical system (MEMS), preferably integrating a light source, a
cantilever, a lens, an actuator, a light detector, and a position sensor. The light
source provides light for illuminating the ROI, displaying an image, providing a
therapy, and/or performing other functions. The cantilever comprises a resin
10 waveguide with a fixed end attached to a substrate that supports many or all other
components. A free end of the cantilever is released from the substrate during
fabrication and includes the lens. The actuator scans the free end in orthogonal
directions to illuminate the ROI or display an image. The position sensors detect
the position of the free end for control. The light detector receives light
15 backscattered from the ROI separate from, or at the fixed end the cantilever.